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91/W/CS/356 Set-aside Study - W. Wheat, Forage Rape, Ryegrass , *Trefoil*

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91/W/CS/356

SET-ASIDE STUDY

Object: To compare different treatments of land temporarily withdrawn from arable cropping and to study their effects on nitrate leaching and on subsequent wheat crops - Woburn, Horsepool Lane Close I.

Sponsors: R.D. Prew, E.T.G. Bacon, M.V. Hewitt, D.P. Yeoman, J.F. Jenkyn, R.J. Gutteridge, W. Powell, J. Ashby.

Associate sponsors: D.L.O. Smith, I. Shield, M.D. Helps.

The first year, w. wheat, forage rape, ryegrass, trefoil.

Design: 3 randomised blocks of 7 plots.

Whole plot dimensions: 10.0 x 24.0.

Treatments:

LAND TRT	Land treatment after w. wheat 1990:
CA WW	Cultivated in autumn, sown to w. wheat
CA RA	Cultivated in autumn, sown to ryegrass in autumn, topped in spring
SA CA FA	Straw chopped and spread in autumn, cultivated in autumn, sown to forage rape in autumn, topped in spring
CA CS	Cultivated in autumn, cultivated in spring
SA CS	Straw chopped and spread in autumn, cultivated in spring
WT	Weeds topped
WT CS TS	Weeds topped, cultivated in spring, trefoil sown in spring, topped

NOTE: Yields were taken from CA WW only.

Standard applications, seed and cultivations, etc.:-

CA WW: W. wheat straw baled and carted: 16 Aug, 1990. Ploughed: 23 Aug. Rolled: 24 Aug. Rotary harrowed, Mercia wheat sown at 150 kg: 25 Sept. Manures: N applied as 'Nitram' at 40 kg: 18 Mar, 1991 and at 160 kg: 17 Apr. Fungicides: Fenpropimorph at 0.38 kg in 210 l: 24 Apr and again with chlorothalonil at 0.49 kg and flutriafol at 0.078 kg in 300 l: 20 June. Combine harvested: 20 Aug.

CA RA: W. wheat straw baled and carted: 16 Aug, 1990. Ploughed: 23 Aug. Rolled: 24 Aug. Rotary harrowed, Italian ryegrass seed sown at 25 kg, rolled: 6 Sept. Topped: 25 Apr, 1991, 19 June, 15 July and 11 Sept.

SA CA FA: W. wheat straw chopped: 19 Aug, 1990. Ploughed: 23 Aug. Rolled: 24 Aug. Rotary harrowed, Giant forage rape seed sown at 10 kg, rolled: 6 Sept. Topped: 25 Apr, 1991, 19 June, 15 July and 11 Sept.

CA CS: W. wheat straw baled and carted: 16 Aug, 1990. Ploughed: 23 Aug. Rolled: 24 Aug. Weedkiller: Glyphosate applied at 0.72 kg: 23 Jan, 1991. Rotary cultivated: 17 June and 15 July.

SA CS: W. wheat straw chopped: 19 Aug. Shallow-tine cultivated: 17 May, 1991 and 15 July.

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Standard applications, seed and cultivations, etc.:-

WT: W. wheat straw baled and carted: 16 Aug, 1990. Topped: 25 Apr, 1991, 19 June, 15 July and 11 Sept.

WT CS TS: W. wheat straw baled and carted: 16 Aug, 1990. Topped: 25 Apr, 1991. Ploughed, rotary cultivated, Virgo Pajayere trefoil seed, inoculated with Rhizobium, sown at 10 kg, rolled: 9 May. Weeds topped: 15 July. Topped: 11 Sept.

Previous crops: W. oats 1989, w. wheat 1990.

NOTE: Soil nitrogen, plant dry matter and plant cover were assessed in autumn, spring and summer.

GRAIN TONNES/HECTARE (CA WW PLOT ONLY) 9.26

MEAN DM% 86.5

PLOT AREA HARVESTED 0.00501